The Chemours Company
1007 Market Street
PO Box 2047
Wilmington, DE 19899

302-773-1000 t
chemours.com

May 11, 2018

Mr. Ben Conetta, Chief
U.S. Environmental Protection Agency
Region 2
290 Broadway
New York, NY 10007-1866

Re: Comprehensive RCRA Facility Investigation (RFI)
Chemours Chambers Works, Route 130, Deepwater, New Jersey
NJDEP SRP PI# 008221
EPA I.D. No.: NJD002385730

Dear Mr. Conetta:

The Chemours Company (Chemours) has received and reviewed the comment letter from the United States Environmental Protection Agency (EPA) (dated March 23, 2018, received on April 13, 2018) and the attached New Jersey Department of Environmental Protection (NJDEP) comment letters on the following Chemours Chambers Works RFI documents:

- Comprehensive RCRA Facility Investigation Report (October 2014) (referred to as RFI report)
- Appendix A: Fact Sheets for Areas of Concern (AOCs) and Solid Waste Management Units (SWMUs) (September 2014) (referred to as the Fact Sheets)
- 2014 Comprehensive RFI Supplemental Information Soil Data Post Maps (September 2015)
- 2014 Comprehensive RFI Supplemental Information SWMU Documentation (April 2016)

Chemours met with EPA and NJDEP in a routine quarterly status meeting on April 25, 2018. The receipt date for the comment letter was discussed. The agencies agreed that April 13th would be the base date for schedule. Therefore, the 30-day response time for these comments is due to the agencies by May 13, 2018.

In addition, the deliverables requested by the agencies within a 30-day required turn-around time were discussed as it was a significant concern when 90- or 180-day timeframes are common for typical RCRA Facility Investigation deliverables. Clarifications and discussion on these deliverables are provided below within the response to comments.

In particular, it was discussed that some requested deliverables, e.g., DNAPL Remediation Work Plan (see EPA Comment 5 below), will require Remedial Action Objectives (RAOs), which will need Agency approval. Further, RAOs are developed as part of the Corrective Measures Studies (CMS) phase of work, which typically follows the completion and approval of the RFI. Pending the resolution of these comments and the approval of the RFI report, a work plan with 30-day delivery date is unrealistic. It was agreed in the April status meeting by all parties that technical meetings to discuss appropriate RAOs will be scheduled in the interim while comments on the RFI are being addressed. Chemours suggests that these meetings begin in June 2018 and continue for three monthly sessions, with the goal of producing a RAO document by the end of September 2018. This document will serve as the basis for future remedial action work plans and report deliverables. Thus, RAO discussions and deliverables will include the scope for investigations to be included in the final RFI document, time bounded remediation goals, appropriate standards for data screening, and a schedule for short-term deliverables, among other items that may be decided during these meetings. As such, the response to some EPA and NJDEP comments provided in this letter includes provisions for the outcome of these planned meetings. Chemours believes that this approach will provide a mechanism for parallel site investigation and corrective measures or interim stabilization measures to be undertaken, which

are necessary to achieve the goals of the multiple remediation programs and oversight under which the Chambers Works site is operating.

In numerous comments, the Agencies requested that various projects (i.e., the Delaware River Investigation, Salem Canal investigation) be incorporated into the Comprehensive RFI Report. This subject has been discussed over the years. Chemours understands the utility of having all aspects within a single document. However, it has not been shown to be practical in terms of continuing the work and driving the schedule in these other areas. The decision to separate these areas was a consensus by the Agencies and DuPont in the past and has continued until now. As discussed in the April 25th status meeting, it has taken the agencies approximately 4 years to review the RFI. The CSM (see the Chemours response to EPA Comment 2) was submitted approximately 1 year ago, and it has not been reviewed. The length of time to review these documents results in additional comments to update information (i.e., screening levels, additional data collected in monitoring programs). Chemours is concerned that if these additional areas are incorporated into the Comprehensive RFI report, the volume of the report will more than double and the review time will be even longer. Chemours proposes that a focused meeting between all parties be held to discuss how to better streamline the reporting and reviewing process so that the work is completed most efficiently by all, while still meeting the regulatory requirements.

The EPA comments are shown below followed by the Chemours response.

EPA Comment 1: *Residual Source Areas: There appear to be areas throughout the facility where soil concentrations exceed the New Jersey Impact to Groundwater Soil Screening Levels (IGWSSL). For soil data in SWMU areas that were not compared to the IGWSSL, please provide an updated table comparing the historical soil concentrations to the IGWSSL.*

Since these areas may represent a continuing source of contamination to the groundwater, EPA expects that these areas will be evaluated for active remediation (i.e., remediation beyond groundwater capture/ containment), either as additional interim measures to be implemented in the near term or as part of the Corrective Measures Study (CMS).

Chemours Response 1: Soil data tables with comparisons with IGWSSLs for the SWMUs and AOCs were provided in Appendix C of the RFI report. In addition, exceedances of the IGWSSLs were presented in the Fact Sheets, as well. As presented in the RFI report, groundwater beneath the vadose zone and SWMUs of the manufacturing area has exceedance of NJGWIIA standards for numerous constituents (see Figures 7-5, 7-9, and 7-13 in the RFI report). Further, DNAPL that exists in the saturated zone, which is present over a large portion the manufacturing area (see Figure 7-28), continues to act as a source to groundwater. Although some constituents in vadose soils zone may exceed the generic IGWSSLs, exceedances in groundwater could be due to DNAPL or migration from other SWMUs due to the operation of the site interceptor well system (IWS).

Chemours acknowledges that significant exceedances of soil remediation standards will need to be addressed in the future. It is expected that this will be completed during the Corrective Measures Study for the site in consideration of current and future land use and protective of potential receptors. This was most recently addressed in the December 11, 2017 letter to Helen Dudar titled *Chemours' Remediation and O&M Cost Estimate August 2017*. This letter described a 6-inch gravel cover on geotextile, which is an appropriate and protective cap design to prevent direct contact impacts to receptors when combined with the other engineering and administrative controls described in the 2017 PA/SI Report.

As agreed upon at the April 25th status meeting and as described above, RAOs should be discussed and agreed to at technical meetings attended by Chemours, NJDEP, and EPA. Once the screening criteria are agreed upon and the RAOs set forth, the teams can then decide how these new standards and procedures will be included into the RFI and CMS programs

EPA Comment 2: *Delineation of Facility Soils for PFAS: Since PFAS was identified in the Salem Canal sediment and in offsite wells as a facility-related contaminant, a facility-wide characterization of PFAS in soil is necessary to identify specific areas which may be sources of groundwater contamination. Please prepare and submit a work plan, within thirty (30) calendar days of receipt of this letter, for performing this characterization effort.*

Chemours Response 2: As discussed in April 25th status meeting, a report entitled Conceptual Site Model (CSM) for Poly- and Perfluoroalkyl Substances (PFAS) for the Chambers Works Complex was prepared and submitted to the agencies in July 2017. This CSM was prepared at the request of NJDEP in an April 6, 2016 letter to Chemours. The purpose of the CSM is to identify sources of PFAS and potential migration pathways that may have resulted in detections of PFAS in off-site environmental media receptors, which are identified in the CSM as off-site surface water, sediment, and residential well water. Conclusions of this CSM are that PFAS were used at the Chambers Works site and that there are detections of PFAS in on-site and off-site environmental media receptors. Groundwater is under control at Chambers Works, and there is no pathway to off-site media receptors through groundwater. Detections in off-site media receptors are therefore likely attributed to air deposition or non-site related sources. Additional PFAS data have been collected since July 2017 and have been reported to the agencies as part of the DGW report and the ongoing off-site residential sampling program. An evaluation of these data indicates that their characteristic and magnitude are consistent with the conclusions for origin and transport within the CSM; therefore, these new data do not change the conclusions of the CSM report.

During the April 25th status meeting, there was a discussion as to whether or not the CSM report should be updated with data collected subsequent to its submittal in July 2017 prior to Agency review. Considering that the CSM is the key document that details what is known about the site, potential source areas, and potential migration pathways, any work plan prepared and submitted to the Agencies would be based upon results and conclusions provided in the 2017 CSM. Therefore, Chemours feels that it's critical for the agencies to review and comment on the CSM report so that Chemours may include considerations for the same in the work plan requested in this comment.

EPA Comment 3: *SWMU 33 (Manhattan Project Area): This area was used by the Manhattan Engineering District and the Atomic Energy Commission to process uranium oxides and uranium bearing scrap. Please provide an explanation of the cleanup activities that have been implemented specific to this SWMU, including an explanation of the potential impacts that the area-specific contamination (i.e., radionuclides) may have on the facility-wide cleanup (i.e., the area specific groundwater sampling program, and whether radionuclides are present in the wastewater treatment plant influent and effluent).*

Chemours Response 3: Characterization, restoration, and long-term monitoring of the Formerly Utilized Sites Remedial Action Program (FUSRAP) areas at Chambers Works are entirely under the purview of the USACOE Manhattan Engineering District (MED). Further, the USACOE MED interfaces directly with NJDEP and EPA with regard to completion of the FUSRAP program at Chambers Works. Although these areas are within the fence line of the Chambers Works Complex, Chemours has no other involvement with these programs. Until such time when the FUSRAP program is complete and final restoration report is submitted and accepted by EPA, it would not be appropriate for Chemours to speculate on impacts, if any, that would result on the facility wide cleanup. The method and degree to which the FUSRAP areas are summarized in the RFI report can be further discussed in the agreed upon technology meetings as discussed above.

Additional information can be found at the USACOE web site (http://www.nap.usace.army.mil/Missions/FUSRAP/)

The RI/FS prepared by the USACOE is available at this web address:
http://www.nap.usace.army.mil/Portals/39/docs/Civil/FUSRAP/FinalSitewideRIJun%202011_Reduced.pdf

USACOE issued a Record of Decision in 2013, which called for excavation of impacted areas, plus the use of long-term monitoring for groundwater contamination (if needed). Regarding MED contaminants in groundwater, USACOE investigated the nature and extent of radionuclides in groundwater and determined that these contaminants were not being transported at the site, either downward or laterally.

EPA Comment 4: *Offsite Groundwater Delineation of PFAS: Based on the current groundwater concentrations of PFAS, the nature and extent of the facility-related PFAS contaminant plume does not appear to be fully delineated either horizontally or vertically off-site. As discussed during our February 14, 2018 meeting, we understand that Chemours will sample existing offsite monitoring wells for PFAS. EPA and DEP continue to maintain the need for additional offsite wells.*

Chemours Response 4a: The 19 existing off-site monitoring wells were sampled for 14 PFAS in late April 2018. The results, which are still pending, will be provided to EPA and NJDEP when available. In addition, Chemours is still in the process of managing exposure to PFOA, PFOS, and PFNA in residential drinking water through the ongoing 2016 Residential Drinking Water Well Surveying and Sampling Program. As of May 2, 2018, Chemours has finalized results for 255 residential drinking-water wells sampled under this program. For wells with concentration above the screening criteria applied, installation of treatment is complete for 122 wells and is ongoing for the other 20 wells. In addition, several phases of surveying and sampling are continuing. In June 2018, an update report will be submitted which will present the following:

- Results of the most recently completed investigation area
- Final results available for ongoing phases of surveying and sampling
- Summary statistics for the program to date
- An evaluation of the branched and linear isomer sampling summary
- An evaluation of the data for horizontal delineation
- And a discussion of the proposed paths forward based on the data evaluation

Chemours recognizes that sampling of properly located and constructed off-site monitoring wells can be useful to support the horizontal and vertical characterization of PFAS in groundwater which can then be used to refine the PFAS CSM. When the majority of the ongoing phases of surveying and sampling (particularly the surveying and sampling in Oldsman's Township) are completed, an additional phase of data evaluation to further delineate the horizontal and vertical extent of PFAS in drinking water wells will be performed. The results of that additional evaluation will then be used to help determine the locations and depths for installation of additional off-site PFAS monitoring wells and to refine the off-site PFAS CSM.

During the meeting, we also discussed the need for the development of Standard Operating Procedures (SOPs) for the off-site private well sampling program. It is our understanding that Chemours agreed to develop the SOPs and we are requesting that they be provided within thirty (30) calendar days of receipt of this letter.

Chemours Response 4b: The SOPs will be submitted under separate cover the week of May 14, 2018.

EPA Comment 5: *DNAPL Treatment: In addition to the DNAPL collection and containment efforts that are being implemented, Chemours should continue to evaluate options for aggressively reducing DNAPL mass and distribution across the facility through active treatment as an additional interim measure(s). Therefore, please provide EPA with a work plan for evaluating DNAPL treatment options within 30 calendar days of receipt of this letter.*

Chemours Response 5: As presented in past reports and discussed in previous meetings, including the April 25th status meeting, the majority of DNAPL at Chambers Works is present as residual DNAPL that is trapped in the pore space of the aquifer and aquitards that underlie the manufacturing area (RFI, 2014). Additional challenges to treating DNAPL include the complex mixture of components that make up the DNAPL, the large horizontal and vertical area over which it occurs, and the heterogeneous makeup of the aquifer units in which DNAPL is located. As stated in the previously submitted *Preliminary Assessment/Site Investigation Report* (July 2017), the IWS in conjunction with sheetpile barriers (SPBs) will continue to be operated as the primary engineering controls to control groundwater beneath the site and that new technologies will continue to be evaluated as they become available to address DNAPL source zones which are currently technically impracticable to remediate. As described above and discussed in the April 25th status meeting, EPA, NJDEP, and Chemours agreed that technical meetings should be conducted to discuss and set forth RAOs that will be used to guide short, middle and long-

term characterization and restoration objectives for DNAPL at the site. Therefore, the work plan for evaluating DNAPL treatment options requested will be provided following the RAO discussion meetings in which the scope and objectives are developed. The joint meeting will aid in streamlining the RAO process and subsequent submittals.

EPA Comment 6: *The Delaware River: Please provide a screening-level ecological risk assessment (SLERA) for the Delaware River that is based on current sample results. The findings of the ecological risk assessment may affect the remedial approach for addressing impacted sediments in the Delaware River.*

EPA expects that, as part of the CMS, Chemours will evaluate options for remediation of DNAPL-impacted river sediment, including measures to either physically remove and/or actively treat, in-situ, contaminated sediment.

Chemours Response 6: A SLERA will be completed for the Delaware River based on current sample results and submitted to the Agencies by September 2018. Pending the outcome of the SLERA, further risk assessment activities or remedial options will be evaluated for the sediment.

EPA Comment 7: *Salem Canal: Please provide detailed information regarding the ongoing supplemental groundwater investigation that is scheduled to be completed in May 2019. Based on our February 14, 2018 meeting, it is our understanding that Chemours will install a monitoring well near the gap in the canal wall to better evaluate any possible groundwater to surface water impacts to the canal.*

Similar to our recommendation on a remedial approach for the Delaware River sediments, remediation of the Salem Canal sediments may be necessary based on the completion of the SLERA. The continuing evaluation and investigation of the Salem Canal should be incorporated into the RFI.

Chemours Response 7: The effectiveness of the SPB was summarized in the Interim Remedial Action progress report that was submitted to the regulatory team in July 2013 (URS, 2013)[1]. Based on analyses in that report, it was determined that the SPB is achieving its design purpose to redirect groundwater flow and prevent impacted groundwater migration to the canal surface water, sediment, and down gradient groundwater. The Supplemental Groundwater Investigation work plan[2] was prepared to address comments to the 2013 report that were provided to the Chambers Works team during the September 2014 and April 2015 update meetings with EPA and NJDEP. The supplemental investigations are being performed to further monitor groundwater quality and movement in the vicinity of and south of the SPB along Salem Canal on a semi-annual basis for four years. Results from each event are provided in the semi-annual New Jersey Pollution Discharge Elimination System – Discharge to groundwater (NJPDES-DGW) report. Results from the most current event are included as Appendix G of the Second Semester 2017 Semi-Annual NJDEP-DGW Report submitted on April 30, 2018. Based on that report, groundwater data continue to support that 1) the SPB is effectively controlling groundwater and eliminating the southward migration of constituents in the seep area; and 2) excluding a one-time anomalous chlorobenzene detection at well G04-M02B, which is within the influence of the IWS, site-related organics have not been detected above NJGWIIA in groundwater south of Salem Canal.

As requested by EPA, Chemours is constructing a monitoring well near the gap that exists between the western end of the Salem Canal SPB and Munson Dam. The purpose of this well will be to monitor groundwater quality at this gap where it may migrate to surface water. As discussed during the April 25th status meeting, construction of this well is expected to be completed in the spring of 2018.

With regards to including the Salem Canal investigation with the RFI report, as noted at the beginning of this letter, Chemours indicated that a focus meeting between all parties will be held to discuss how to better streamline the reporting and reviewing process so that the work is completed most efficiently by all while still meeting the regulatory requirements.

[1] URS. 2013. Salem Canal Groundwater Remedial Action Progress and Sediment Investigation Status Report. DuPont Chambers Works, Deepwater, New Jersey
[2] URS, 2014 Supplemental Groundwater Monitoring Work Plan for Salem Canal Sheet Pile Barrier (SPB)

EPA Comment 8: *Remediation of the Ditches: The RFI should address the sections of the ditches that did not previously undergo remediation. Please provide, by area of concern, the rationale for not including ditches and sections of ditches in the remediation plan.*

Chemours Response 8: A summary report will be provided to the agencies to document an inventory of ditches at Chambers Works, the current status of ditches that did not previously undergo remediation, and the rationale for previous remedial measures associated with the ditches. This information will be submitted in June 2018 and can be reviewed during the proposed technical review meeting to discuss RAOs and determine a path forward with respect to ditches as well as other potential sources in a site wide context.

EPA Comment 9: *No Further Action Determinations: EPA notes that NJDEP's comment letter contains No Further Action (NFA) determinations for specific SWMUs, and indicates that these SWMUs should be identified as No Further Investigation (NFI). These however are preliminary determinations; remedy selections, including no further action determinations, are subject to public notice and comment prior before final approval under EPA's Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments (i.e., HSWA) permit.*

Chemours Response 9: Comment noted; no response necessary. Individual responses to NJDEP comments are provided below.

Comments from NJDEP dated January 2017

The Chemours Company (Chemours) has received and reviewed the January 30, 2017 comment letter from the NJDEP (SRP PI # 008221) to the EPA on the following Chemours Chambers Works RFI documents:

- Comprehensive RCRA Facility Investigation Report dated October 2014
- Appendix A Fact Sheets for AOCs and SWMUs dated September 2014
- Comprehensive RFI Supplemental Information Soil Data Post Maps dated September 2015
- 2014 Comprehensive RFI Supplemental Information SWMU Documentation dated April 2016

The NJDEP comments are shown below followed by the Chemours response.

NJDEP Comment 1: *Section 2.2.1:[Delaware River Groundwater to Surface-Water Investigation Report, 2008] To clarify, although the RFI states "results indicated that ground water is not adversely impacting surface", according to information in the files, the Department did not agree that the discharges are negligible. It is also not agreed all required sediment and possibly surface water sampling of the Delaware River is completed (see Ecological Issues, below).*

Chemours Response 1: A site-wide data evaluation was conducted in 2003 to support environmental indicator (EI) determinations for the site. The site has been designated by EPA as one of the Corrective Action (CA) Baseline facilities as part of the agency's efforts to comply with the 1993 Government Performance Results Act (GPRA). Compliance with the GPRA for the RCRA CA Program is measured by achieving a positive determination with two EIs: migration of contaminated groundwater under control (EPA RCRIS Code CA750) and current human exposures under control (EPA RCRIS Code CA725). As a "Baseline" facility, it was desired that compliance with the two relevant EIs be achieved by 2005. DuPont obtained a positive finding from EPA for the EI CA725 in September 2004, indicating that releases, or the potential for releases, identified from RCRA corrective action units at the site do not constitute a significant threat to human health under current land use. Reasonably expected exposures from potentially complete exposure pathways were found to be insignificant. The potential for exposure could be prevented or controlled. Chambers Works also received a positive determination from EPA for EI CA750[3] in September 2004. Chemours acknowledges that the EI process was and EPA led program that did not require NJDEP approvals.

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[3] DuPont CRG. 2004. Supplemental Evaluation on Potential Groundwater to Surface Water Migration in Further Support of the Environmental Indicator (EI) CA750 Determination. DuPont Chambers Works, Deepwater, New Jersey.

Potential exposure pathways along the western perimeter of Chambers Works were identified. Chemours completed construction of a sheet pile barrier along AOCs 1, 2, and 3 and the Delaware River in late 2017 to mitigate the discharge of B aquifer groundwater from the site into the Delaware River. As described above in Chemours response to EPA Comment 1, the existing SLERA is being updated to include the most recent data that have been collected since the SLERA was originally submitted. The updated SLERA is scheduled to be submitted to the agencies in September 2018. In addition, a tidal study is ongoing to evaluate the performance of the SPB. SPB hydraulic performance report is scheduled to be submitted to the agencies in July 2018.

NJDEP Comment 2: *Section 2.3 [SWMU and AOC Status]: Page 8 - for clarification - the RAP application was subsequently withdrawn, as recommended, to be resubmitted at a later stage in the remedial process.*

Chemours Response 2: No response necessary.

NJDEP Comment 3: *Section 2.5.1: See specific remarks relative to individual SWMUs under comments to SWMU Documentation, below.*

Chemours Response 3: Comments on specific SWMUs addressed below.

NJDEP Comment 4: *Section 2.5.7 - Corrective Measures: SWMU 39-1: Monitored natural attenuation (MNA) is proposed. Based upon information found in the files, however, the RASR referenced in the RFI was found unacceptable in August of '09, due to the high levels of BTEX and naphthalene in the ground water. At that time, it was suggested perhaps enhanced bioremediation would be acceptable, or a technology (e.g. bioslurping) where oxygen is slowly injected.in the ground and bioremediation is stimulated, but issues often associated with air sparging are not encountered.*

Chemours Response 4a: Chemours requests a copy of the referenced NJDEP document from August 2009 finding the SWMU 39-1 RASR unacceptable, as we have no record that it was submitted to DuPont.

SWMU 45-2: Ensure the comments (and results from same) noted in Ecological Issues, below, are incorporated into evaluation of options.

Chemours Response 4b: Chemours will ensure that the comments noted in Ecological Issues are incorporated into the evaluation of options.

NJDEP Comment 5: *Vapor Intrusion: The Vapor Intrusion investigation remains ongoing.*

Chemours Response 5: As noted, the vapor intrusion (VI) program is ongoing. Updates to the VI program are provided to the agencies at the quarterly meetings, most recently during the April 25th status meeting and more details can be found in the VI Remedial Investigation Report (VIRIR, AECOM, 2016).

NJDEP Comment 6: *Ground Water (and DNAPL): E Aquifer: The report states that the contamination detected at concentrations greater than the Ground Water Quality Standards (GWQS) within the E Aquifer are localized and is a result of failed well aquifer recovery well system.*

The ground water monitoring and containment systems for the E aquifer, however, appear to be under designed. For example, there is a relatively low quantity of monitoring and hydraulic control/recovery points completed in the E aquifer with respect to the size of the distribution area for the ground water contamination.

Consequently, Chemours shall provide the evidence and rationale used to establish these conclusions. Chemours should also evaluate an upgrade to the monitoring and containment systems in order to adequately address the E aquifer contamination. In addition, Chemours should submit a status report regarding the most current investigation, monitoring, and remedial activities that are addressing the E aquifer.

In the Manufacturing Area there were numerous ground water samples collected from sampling points completed within the D aquifer that contain contaminant concentrations significantly greater than the GWQS (Fig. 7-7 and Fig. 7-11 of report). However, no companion E aquifer sampling points were installed at many

of the contaminated D aquifer sample locations for further evaluation of vertical contaminant migration into the E aquifer (Fig.7-8 and Fig. 7-12 of report).

The Department considers the lack of E aquifer points completed at contaminated D aquifer monitoring wells to be a data gap. Chemours shall submit or reference the rationale used to conclude that additional E aquifer wells were not needed at many of the contaminated D aquifer monitor wells. Chemours shall also evaluate the need for the installation of E aquifer sampling points at additional D aquifer sampling locations.

Chemours Response 6a (E Aquifer): Chemours has completed several rounds of geologic and hydrogeologic investigations at Chambers Works. A key finding of those investigations is that the aquitard that separates the D and E aquifers (i.e., D/E aquitard) is very thick and quite impermeable. This is particularly evident by the difference in potentiometric surfaces between the D and E aquifers as shown in the semi-annual NJ-DGW report. As such, D and E aquifer well pairs would not provide additional information for the source of detections in the E aquifer and could create avenues of migration for site constituents to move into the E aquifer. However, as requested, potential upgrades to the E aquifer monitoring and containment programs will be evaluated. Chemours recommends that the review of these programs be included in the technical meetings that were agreed to at the April 25th status meeting and are described above.

DNAPL: The report indicates there is significant site-wide distribution of evidence for the presence of DNAPL and DNAPL sources. However, it appears that the DNAPL recovery and containment systems are under designed with respect to the distribution and quantity of DNAPL present at the site. For example, there appears to be too few DNAPL collection and containment points to adequately address the large area of site wide DNAPL distribution.

Chemours shall elaborate on this apparent discrepancy. Chemours shall also evaluate and report on the need to upgrade the design of the DNAPL collection/containment systems.

Chemours Response 6b (DNAPL): See response to EPA Comment 5. In addition, it should be re-iterated that the feasibility of collecting DNAPL is evaluated whenever DNAPL is encountered. The apparent discrepancy in DNAPL recovery and containment systems and the significant site-wide distribution of DNAPL is due to the fact that the majority of DNAPL is present at residual saturation levels[4]. That is, it is trapped in pore spaces and cannot move. Therefore, recovery and containment systems are typically ineffective at removing residual DNAPL from the subsurface. As stated in the response to EPA Comment 5 above, Chemours plans to address DNAPL as part of the technical meetings agreed to at the April 25th status meeting and described above.

Miscellaneous: Finally, based upon the DGW and other submittals, additional delineation and/or monitoring of the ground water is necessary in several locations of the site. This includes, but is not limited to, the Secure C Landfill and certain areas of the perimeter, as has been discussed in correspondence directly with Chemours (with a copy provided to EPA), relative to renewal of the NJPDES permit. As was briefly discussed in the April 28, 2016 Quarterly meeting, further characterization of the ground water flow regime at the facility's eastern property boundary is necessary in order to determine if sufficient hydraulic control in this area is present. The characterization should include, but not necessarily be limited to, the completion of ground water level measurements at an adequate number of both onsite and offsite monitoring points. The resulting measurement data should be presented on a ground water elevation contour map that encompasses both the onsite and offsite areas. This will assist in confirming adequate understanding of the flow regime (and therefore delineation) in that area of the facility.

Chemours Response 6c (Misc.): Chemours made the upgrades requested by NJDEP in 2017 as reported in the Second Semester 2017 Semi-Annual NJDEP-DGW Report submitted on April 27, 2018.

NJDEP Comment 7: *<u>Ecological Issues</u>: Although the Executive Summary indicates ecological evaluations were completed earlier in the RFI process, the Department does not agree the previously performed evaluations were adequate for all ecological receptors. Preliminary ecological comments were provided via*

[4] As stated in Section 7.6 of the RFI Report, the majority of the DNAPL mass (80 to 90%) is expected to occur as residual phase within the aquifer.

email on January 9, 2015, however, are being reiterated and expanded upon. Individual SWMU Documentation comments may also contain remarks regarding ecological issues. A March 2009 Ecological Investigation Report (EIR) evaluated potential risks to ecological receptors at the site. The investigation was conducted according to a February 2008 Revised El Workplan and was intended to address NJDEP's recommendations for further evaluations specified in a previously submitted Baseline Ecological Evaluation (BEE). Ecological investigations were conducted in a phased approach, with the EIR focusing on the Carney's Point area and limited portions of the Chambers Works manufacturing area of the site. Investigation of the adjacent Salem Canal and Delaware River are being conducted separately from these on-site areas and being addressed as per ongoing discussions.

Ecological exposure areas were grouped into the following habitat categories having similar contaminant sources, migration and exposure pathways, and ecological receptors:

- *Henby-Bouttown Creek System*
- *Henby-Bouttown Wetland System*
- *Carneys Point Ponds and Historic Ponds*
- *Carneys Point Uplands*
- *Manufacturing Ponds and B Basin.*

Ecological exposure was evaluated based upon a tiered approach. The Tier I evaluation based potential exposures on a conservative scenario and the Tier II evaluation utilized a less conservative site-specific scenario. The EIR concluded the only areas investigated that may pose unacceptable risks to ecological receptors were former ditches draining upland portions of Carneys Point into Bouttown Creek. The EIR recommended additional investigation of ecological exposures in the Bouttown Creek ditches and proposed to include "an assessment of the bioavailability" of COPECs in sediments to "reduce uncertainty regarding potential risks to benthic communities associated with the ditches".

As noted above, ecological investigations in the Carney's Point area historically focused on elevated concentrations of site-related metals and organic constituents in sediments and hydric soils immediately 'adjacent to or within ditches draining to Bouttown Creek and Bouttown Creek itself (see figures 5-1 and 5-2 in the 2009 EIR). Following additional ecological investigations of the Bouttown Creek ditches to evaluate the bioavailability and toxicity of metals in sediments and a weight-of evidence evaluation of ecological risks, the Department supported the recommendation for no further investigation, provided environmental conditions in Bouttown Creek do not change dramatically.

In the RFI, potential ecological receptors and exposure points were reviewed, the RFI referencing previous reports and approvals, and concluding that the ecological review indicated no data gaps requiring further investigation.

SWMU 45-2: The Department has concerns, however, regarding soil sample results which potentially were not utilized in the ecological exposure evaluation of SWMU 45-2 in the Carney's Point uplands. Figure 6-3 of the RFI suggests that numerous soil sample locations outside of the depicted area of SWMU 45-2 (tinted beige) were not included in the evaluation. This concern is reinforced by also noting that Maximum Soil Exposure Point Concentrations for metals used in the Tier I Evaluation (see Table 1-92 in the 2009 EIR) are significantly lower than concentrations of metals detected- in surface soil samples collected outside of, but immediately adjacent to, the depicted SWMU 45-2 area. Examples include surface soil samples P2-C6B (5,020 ppm lead), P2-CSA (1760 ppm copper), and P2-C2A (890 ppm arsenic). Information is requested to explain this suspected omission; or re-examine the ecological exposure evaluation of this area.

1. *In addition to potential food chain exposures, direct toxicity to soil invertebrates must be included in the ecological exposure evaluation.*
2. *It was noted that a Corrective Measures Study was recommended for SWMU 45-2 in 2013 (Table 6-1 of the RFIR).*

Chemours Response 7a: Surficial soil data (0 to 1 foot below ground surface) used to evaluate uplands exposure in SWMU 45-2 in the 2009 Ecological Investigation Report were reviewed in the context of the NJDEP comment. The results of the review indicate that surficial soil data collected outside of, but

adjacent to, SWMU 45-2 in previous phases of the RFI (prior to 1997) were not included in the evaluation of exposure to mobile terrestrial wildlife.

As noted in the above comment, the 2014 RFI Report indicated that a Corrective Measures Study (CMS) was recommended for SWMU 45-2 in the 2013 Interior Investigation Technical Memorandum (URS, 2013). The RFI Report indicated several metals in soil in SWMU-45 at concentrations exceeding impact to groundwater and direct contact soil remediation standards. In addition to these soil standards, potential ecological exposure in SWMU 45-2, including exposure to wildlife and soil invertebrate receptors, will be evaluated and considered in the selection of corrective measures. The evaluation of potential ecological exposure in the CMS will consider potential re-use of the SWMU 45-2 to evaluate whether future land use in SWMU 45-2 will provide habitat to support ecological receptors and complete exposure pathways.

Delaware River: Regarding the Delaware River, as indicated in Department's September 27, 2012 comments (attached) to the Delaware River RIR, delineation of the sediments was incomplete, and is to be accomplished during further ecological evaluation of the River, which department agreed may be deferred until hydraulic control was attained. Completion of the SPB wall along AOC 1, anticipated in the near future, should be the final step in achieving hydraulic control along the River; the additional ecological evaluation shall recommence shortly thereafter.

The Salem Canal investigation remains ongoing.

Chemours Response 7b: As indicated in the response to EPA Comment 6, a SLERA will be completed for the Delaware River based on current sample results and submitted to the Agencies by September 2018. Further investigation in the Delaware River, including potential delineation and ecological risk assessment, will be evaluated based on the findings of the SLERA.

NJDEP Comment 8: *Section 7.4: PFOA: Table C.4-1 is referenced as a summary table of historical PFOA soil data. The table, however, does not provide the actual results. It is understood a CSM for PFCs is currently under development. Please ensure tables and maps include each analytical result, location, depth, etc. as has been discussed. Please advise if there are any questions. Figures 7-22 through 7-24 illustrate the maximum exceedances in factors of exceedance (1-10, 10-1000 and >1000), rather than analytical results. As previously discussed, although these maps are beneficial, the Department also requires maps which include the actual analytical findings. It is acknowledged the required maps are submitted with the PFOA Monitoring Program; please ensure the CSM submittal also includes similar maps.*

Chemours Response 8: The PFAS CSM was submitted to the agencies in July of 2017. Complete data tables and posting maps of the results for all PFAS are included in that report which is currently being reviewed by NJDEP and EPA.

NJDEP Comment 9: *Figures: As previously indicated, the figures included in the RFI were insufficient for adequate review; additional figures representing sampling locations and findings were therefore submitted, in the form of "Supplemental Soil Data Post Maps". The review of the Soil Data Post Maps indicated significant exceedances of both the non-residential direct contact soil remediation standards (NRDCSRS) and the impact to ground water soil screening levels (IGWSSL). Comments to same were provided on December 31, 2015, attached, listing key, but not all, sampling points at which contaminants significantly exceeded the IGWSSL. Chemours should address the many significant exceedances of the IGWSSL, and indicate, with appropriate technical justification, how each exceedance is to be managed. The comment letter also stated Chemours should indicate how all exceedances of the NRDCSRS will be addressed.*

Additionally, although it is agreed soil data from points which were subsequently removed via excavation should not appear on the maps, it appears the Soil Data Post Maps do not include all historic sampling findings, as is required, in all areas, e.g. SWMU 7 Fact Sheet indicates several samples were collected and elevated lead, among other COCs, is present to 7740 ppm (depth not reported), however, Soil Post Map MA-EAST-3 does not reflect same. The maps should reflect all data above standard for soils which remain.

Chemours Response 9: Chemours acknowledges that significant exceedances of soil remediation standards will need to be addressed in the future. It is expected that this will be completed during the

Corrective Measures Study for the site in consideration of current and future land use and protective of potential receptors. This was most recently addressed in the December 11, 2017 letter to Helen Dudar titled *Chemours' Remediation and O&M Cost Estimate August 2017*. This letter described a 6-inch gravel cover on geotextile, which is an appropriate and protective cap design to prevent direct contact impacts to receptors when combined with the other engineering and administrative controls described in the 2017 PA/SI Report.

As agreed upon at the April 25th status meeting and as described above, RAOs should be discussed and agreed to at technical meetings attended by Chemours, NJDEP, and EPA. Once the screening criteria are agreed upon and the RAOs set forth, the teams can then decide how these new standards and procedures will be included into the RFI and CMS programs

NJDEP Comment 10: *APPENDIX A Fact Sheets: The Fact Sheets typically include exceedances of the NRDCSRS, with IGWSSL often included. Numerous exceedances of the IGWSSLs are of concern to the Department (see comments of December 31, 2015 regarding same) as additional action may be required to address what may be acting as continuing source material. Also, exceedances of the RDCSRS are of potential concern as the post remediation exceedance of same necessitates establishment of a deed notice. Although post remediation exceedances of NRDCSRS will likely be the driving force and therefore the contaminant concentration incorporated into a deed notice, it is possible the RDCSRS for specific COCs or in specific AOCs will be the standard for which an exceedance Sheets also include the RDCSRS.*

Chemours Response 10a: Appendix A contains the Fact Sheets that were developed for the SWMUs and AOCs along with a concise history of the Fact Sheets development and their purpose. These Fact Sheets are not a regulatory requirement, but were initially developed in 1999 as a means to obtain a No Further Action determination from EPA and NJDEP for the respective SWMUs. As SWMUs were investigated, separate fact sheets were developed to support a No Further Action (NFA) determination or support a Declaration of Environmental Restriction (DER) for the site. Since 2002, fact sheets were developed for all SWMUs and, with each iteration, additional information was added at the request of the Agencies to be all encompassing. Currently, the compilation of Fact Sheets is approximately 500 pages. In recent years, a SWMU spreadsheet was requested to contain similar information. Considering numerous comments were received on the Fact Sheets and they are not a regulatory requirement, it is unclear whether the continued revisions of the Fact Sheets are beneficial. Since 1999, numerous changes have been made to the screening criteria and the regulatory requirements. These changes have not substantially altered the conclusions for these SWMUs. As a means to streamline the review process, perhaps a discussion on the utility of the Fact Sheets is necessary between Chemours and the Agency.

As above, a large number of the SWMUs are listed as NFA (No Further Action). As has since been acknowledged by Chemours, however, this should typically read No Further Investigation (NFI). Each Fact Sheet should be amended as appropriate to reflect same, keeping in mind regulators have also not approved NFI for many of the SWMUs (see comments on the April 2016 SWMU Documentation, below). If not, each Fact Sheet should be amended to reflect the agreed upon designation, e.g. undergoing additional evaluation, CMS, etc. For each AOC and SWMU which has not received a regulator designation of "NFA", tables should be revised to reflect NRDCSRS, rather than NRDCSCC. Additionally, many of tables state specific constituents have no applicable criteria. As several of these constituents do have standards at this time, these should be amended to reflect the current applicable standards.

It may be beneficial to include not only the contaminants of concern (COCs) within the tables contained in each AOC Fact Sheet, but also the extent and/or concentration range at which each is present (AOC 2 lead to 42,400 ppm), as is provided in the SWMU Fact Sheets. As a suggestion, it may also be of benefit to note on each table which of the September 2015 maps include which data (e.g. AOC 1 exceedances are found on several of the maps - MA-NW-l, MA-NW-3&4, MA-NW-6, MA-NW-5 and MA-l), for ease. Confirmation of findings was difficult without same. Incorporation of the COC results, and depths, will likely be necessary once filing of the deed notice is deemed appropriate.

Many of the Fact Sheets indicate a "site-wide deed notice will be established for the entire facility". The establishment of a site-wide deed notice (with engineering controls as needed) is conceptually acceptable, the filing of which would likely follow performance of approved remedial activities.

Chemours Response 10b: Refer to Chemours response 10a.

NJDEP Comment 11: *Fact Sheet for AOC 2 - Page 2: Remedial actions were completed at SWMUs 17, 25, 39-2 and 57 - see individual SWMU Documentation comments, below.*

SWMU 17: As indicated in the individual SWMU comment, the Department does not agree sufficient remedial actions were completed at SWMU 17. This comment is applicable for all portions of the SWMU, not just that within AOC 2. SWMU 25: Although the asphalt was removed, it appears the underlying soil, containing lead up to 12,700 ppm was left in place.

SWMU 39-2: No post excavation sampling was performed to confirm adequate soil removal.

SWMU 57: The Fact Sheet for SWMU 57 specifically states no remedial action was performed.

Chemours Response 11: Responses to individual SWMUs are included below.

NJDEP Comment 12: *Fact Sheet for SWMU 5A: Based on a review of the Soil Post Maps, it appears the table of results should be amended to include benzo(b)fluoranthene to 60, rather than 13 (PZ-5-3 at 2-2.5'), chrysene to 59, and lead to 1320. Naphthalene should be added, which was found at P2-5-3 at 2-2.5' from 0.37 to 4000, while mercury was found to 69; 1,4-DCB was also found at 44. The table of constituents which were "detected but do not have applicable criteria" should be amended to include those noted in Figure 12-7 of the PA, which indicates "results that remain" include aniline to 120 and 4-chloroaniline to 32 ppm. The COCs which exceeded its IGWSSL should also include 1,2,6-trichlorobenzene, benzo(a)pyrene, nitrobenzene, naphthalene, benzo(a)anthracene and benzo(b)fluorene, among others, as indicated on the Soil Post Map.*

Chemours Response 12: Refer to Chemours response 10a.

NJDEP Comment 13: *Fact Sheet for SWMU 5B: Constituents as noted on the maps but not in the Fact Sheet include Pb to 740 and mercury to 1.06 and nitrobenzene at 0.51, while the aniline and 4-chloroaniline noted on the Fact Sheet tables were not included on the Soil Post Maps.*

Chemours Response 13: Refer to Chemours response 10a. Chemours will update Soil Post Maps as requested.

NJDEP Comment 14: *Fact Sheet for SWMU 7: It does not appear the majority of the analytical results of constituents listed on the tables are noted on the Soil Post Map MA-EAST-3, indicating they represent results from samples omitted from the map.*

Chemours Response 14: Chemours will update the Soil Post Map MA-EAST-3 as requested.

NJDEP Comment 15: *Fact Sheet for SWMU 9,10,11: Although it is agreed reported constituent concentrations were below the applicable criteria, institutional controls are in place for these SWMUs as they were included in the Deed Notice previously recorded.*

Chemours Response 15: Chemours agrees that the reported constituent concentrations were below the applicable criteria, institutional controls are in place for these SWMUs as they were included in the Deed Notice previously recorded.

NJDEP Comment 16: *Fact Sheet for SWMUs 14 & 15: - The Department's file indicates the A Basin Vault is no longer in use and was given a designation of NFA on August 24, 2010. The Fact Sheet should be revised (Fact Sheet Date noted as 3/22/02), or the Department should be notified if its records are inaccurate.*

Chemours Response 16: Refer to Chemours response 10a.

NJDEP Comment 17: *Fact Sheet for SWMU 17/17A: As stated, the Department is not in agreement that no additional action is necessary; see comments under SWMU Documentation.*

Chemours Response 17: Chemours acknowledges the comment.

NJDEP Comment 18: *Fact Sheet for SWMU 26: The Fact Sheet states "numerous PCBs were detected in groundwater", but provides no table, nor range of findings, instead refers to the Phase III Report. As with other Fact Sheets (and other constituents within this Fact Sheet), this information should be provided within the Fact Sheet.*

Chemours Response 18: Refer to Chemours response 10a.

NJDEP Comment 19: *Fact Sheet for SWMU 41-2: A single soil sample is referenced as collected from the SWMU, however, it appears another was within this area during the Data Gap sampling- Int-VZH-090, which noted slightly elevated levels of several PAHs.*

Chemours Response 19: The sample INT-VZH-090 was collected outside a warehouse loading dock area that was still operational with truck traffic, so the elevated PAHs in the soil may not be related to the SWMU.

NJDEP Comment 20: *Fact Sheet for SWMU 41-6: The Fact Sheet does not include results from April '94 (lead at 480 ppm and ben(a)pyrene 0.53 ppm) and December '11 sampling (arsenic slightly elevated at 20.7 ppm) which appears to be within the area of the SWMU.*

Chemours Response 20: Refer to Chemours response 10a.

NJDEP Comment 21: *Fact Sheet for SWMU 45-2: It would be beneficial to include the range of results found, e.g. arsenic to 5190 ppm, lead to 11,800 ppm, zinc to 9500 ppm, mercury to 12.8 ppm, benzo(a)anthracene to 160 ppm, benzo(b)fluorenthene to 130 ppm, etc. (Soil Post Map CP-6).*

Chemours Response 21: Refer to Chemours response 10a.

NJDEP Comment 22: *Fact Sheet for SWMU 46: The SWMU was included in the Deed Notice recorded August 2002, which necessitates the performance/completion of a Biennial Inspection Report. Page 3 indicates no institutional controls are required as all constituent concentrations are below the NRDCSCC. Although it is not specified whether the constituent concentrations exceed the Residential criteria/standard, institutional controls in the form of a Deed Notice are required for any constituent remaining above the RDCSRS, while exceedances of the NRDCSRS require the additional measure of engineering controls.*

Chemours Response 22: Refer to Chemours response 10a.

NJDEP Comment 23: *Fact Sheet for SWMU 52: - Soil Post Maps indicate lead is found above the RDCSRS, but -below the NRDCSRS beyond the boundaries of the remediated area, but Table 6-1 of the RFI indicates lead slightly exceeds the NRDC standard; clarification is requested. It is also recommended the exceedances remaining be included in the Fact Sheet.*

Chemours Response 23: The soil with lead exceedances above NRDCSRS have been stabilized within SWMU 52 (refer to Fact Sheet list of references). The remaining soil (not stabilized) on the remedial boundary of SWMU 52 have lead concentrations above RDCSRS but below NRDCSRS with engineering controls in place. Also, refer to Chemours response 10a.

June 19, 2015 Supplemental Info for SWMU Review Meeting & April 2016 SWMU Documentation (received April 28, 2016)

2014 Comprehensive RFI Supplemental Information

Although a list of SWMUs should remain active until such time as an individual SWMU is adequately remediated/addressed, tracking by AOC rather than SWMU, when possible is acceptable (and even preferable) to the Department, as remedial activities are not typically SWMU specific nor driven, and would allow sampling, planning and application of remedies without constraints of SWMU boundaries. As designation and tracking of the SWMUs deferred to EPA.

The comments below are in response to review of the above referenced information submitted to document the current status of each SWMU, and are primarily provided in order similar to the submittal's SWMU Status

and Documentation Table dated April 16, 2016. The categories underlined below are designated in the April 2016 table, pages 1 through 5.

NJDEP Comment 24: *RCRA Part B Permitted Operating Unit: SWMUs 18,23,24,27 & 29: It is agreed these SWMUs are RCRA Part B permitted Operating Units, and are considered by the facility as following a different path than those SWMUs undergoing correction action. As the units do, however, appear to meet the EPA's definition of a SWMU ("any unit at a facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid and/or hazardous wastes"), it does not seem they should be removed from consideration as SWMUs.*

Chemours Response 24: SWMUs will remain on the active SWMU list, but no further investigation of units will be completed until such time that their status changes or they are removed as a RCRA Part B Permitted Operating Unit.

NJDEP Comment 25: *Corrective Measures Study Proposed: SWMUs 8, 39-1, 40, 45-2: The proposal for performance of a Corrective Measures Study is acceptable at each.*

Chemours Response 25a: Chemours acknowledges the acceptance of the proposal to complete Corrective Measures Study at SWMUs 8, 39-1, 40, 45-2.

SWMU 39-1: As indicated in the RFI comments, however, based upon information found in the file, the determination was made in August 2009 the concentrations of BTEX and naphthalene in the ground water were too high for a monitored natural attenuation remedy. Additional (more current) information is necessary to determine the appropriate remedy.

Chemours Response 25b: Chemours proposes to resample wells in the area to obtain more current data and to re-evaluate if MNR is still a viable remedial option.

NJDEP Comment 26: *Army Corps of Engineers Lead: SWMU 33 (Manhattan Project): Although it is agreed the Army Corps of Engineers (ACE) is lead for contamination relating to the Manhattan Project, contaminants of concern unrelated to the Manhattan Project have been noted. Any contamination unrelated to the Manhattan Project that remains following ACE remedial activities, however, must be addressed by Chemours.*

Chemours Response 26: Chemours agrees. However, establishing proper RAOs for these areas will not be possible until the restoration work is complete and long-term monitoring plans are made available by USACOE. Chemours will work with the agencies at that time to evaluate if additional corrective measures are necessary at these areas.

NJDEP Comment 27: *NJDEP NFA (10/21102) -Deed Restrictions Recorded: SWMUs 9, 10, 11, 14, 15, 16, 32B, 37,41-4,41-5,41-6,41-7,46,47,54 & 61: Each of these SWMUs was included in the Department's Restricted NFA letter of October 21, 2002. It is agreed removal of these SWMUs from the active SWMU list is acceptable.*

Chemours Comment 27a: Chemours acknowledges NJDEP's agreement that no further investigation is needed for these SWMUs from the Department's Restricted NFA letter.

SWMU 13 - Secure C Landfill C – Cell 1: Although this SWMU was included in the October 21, 2002 DEP issued Restricted NFA letter, no soil sampling was performed in/around this single lined area, and ground water is impacted. As such, the unit should remain on the list of SWMUs.

Chemours Response 27b: SWMU 13 (Cell 1 CA Program) is addressed by an ongoing RCRA Corrective Action groundwater recovery program reported semi-annually to the NJDEP in the DGW report. Additional investigation of SWMU 13 is not needed.

NJDEP Comment 28: *RCRA Clean Closed Under NJDEP: SWMUs 20, 21, 22, 26 & 28: Although it is agreed each of these SWMUs were "RCRA clean closed", insufficient information has been provided to allow for the requested removal from the active SWMU list, or determination of no further action required. It is not clear RCRA closure activities were adequate to ensure no contamination remains or to evaluate whether contamination had migrated from the unit. To obtain a determination that no further action is necessary,*

information must be provided which substantiates the "closure" previously undertaken was sufficient to comply with evaluation as required by applicable guidance documents and Technical Requirements for Site Remediation, N.J.A.C. 7:26E.

Chemours Response 28a: Chemours requests clarification on what additional data are required to consider these SWMUs sufficiently characterized.

SWMU 25: The SWMU was described as an asphalt covered area used for storage of lead waste. Although it is agreed the RCRA regulated unit was delisted in 1992, it is not clear the term "RCRA clean closed" is accurate. It appears the asphalt layer only was removed, leaving undisturbed the underlying soil containing lead concentrations up to 12,700 ppm (included in the Soil Post Map comments as a significant exceedance requiring additional information), which was subsequently covered by geotextile and stones. Although submittals indicate the area is to be handled under SWMU 57, SWMU 25 does appear to continue to meet the definition of a SWMU, and should be neither NFA'ed nor removed from the list of SWMUs.

Chemours Response 28b: Recommend that SWMU 25 be categorized as NFI, and a CMS for SWMU 25 will completed under SWMU 57.

NJDEP Comment 29: *Regulator Approval/EPA No Further Action Letter: SWMU 42: As per the Department's December 6, 2010 letter, no additional investigation is necessary. The request to remove this SWMU from the SWMU list is acceptable to the Department.*

Chemours Comment 29a: Chemours acknowledges the acceptance that no further investigation is required at SWMU 42.

SWMUs 19, 32A & 51: As indicated, the EPA/NJDEP approved no further action on March 25, 1993 (SWMUs 19, 32A), and July 25, 1995 (SWMU 51). It is agreed removal of the SWMUs from the SWMU list is acceptable.

Chemours Comment 29b: Chemours acknowledges the acceptance that no further investigation is required at SWMUs 19, 32A and 51 from the SWMU list.

SWMU 39: Although the comment included in the December 6, 1993 correspondence indicates the Department agreed no additional action was necessary, no sampling was performed during removal of the 19 USTs, and a formal determination of no further action is therefore not appropriate. A ground water corrective measures study, as proposed, is appropriate. The SWMU should remain on the list at this time.

Chemours Comment 29c: Chemours agrees that no further investigation is required at the former locations of the 19 USTs of SWMU 39 and that any potential groundwater impacts from these areas will be addressed as part of the site wide corrective measures for groundwater.

SWMUs 38, 49 & 50: In March of 1993, regulators agreed no further action was necessary. The request to remove these SWMUs from the SWMU list is acceptable to the DEP.

Chemours Comment 29d: Chemours acknowledges that no further investigation is required at SWMUs 38, 49 and 50.

SWMUs 48-2 & 48-4: EPA and the Department agreed no further action was required in 1993. The request to remove these SWMUs from the active SWMU list is acceptable, however, SWMU 45-9, which traverses the area, should remain open as only one foot of soil was remediated, and soil contamination remains.

Chemours Comment 29e: Chemours acknowledges that no further investigation is required at SWMUs 48-2 and 48-4, but the need for additional investigation of SWMU 45-9 may need clarification.

NJDEP Comment 30: *Improperly Identified as SWMU: SWMUs 35, 36, 44 & 53: It is agreed these areas were misidentified as SWMUs, and removal from the list of SWMUs is acceptable. As indicated on the SWMU Status and Documentation Table, a ground water corrective measures study in the areas of SWMU 35 and 36, located in AOC 1, is proposed in the RFI, as the extent of ground water contamination extends beneath AOC 1; this is acceptable.*

Chemours Response 30: Chemours acknowledges that no further investigation is required at SWMUs 35, 36, 44 and 53.

NJDEP Comment 31: *No Further Investigation for Soil Proposed: SWMUs 1/2: Although it is agreed a crushed stone cap is currently in place, benzene, 1,4-dichlorobenzene and naphthalene are noted as present. Given that these contaminants are inhalation exposure pathway driven, a crushed stone cap may not be adequate. Additional information/justification of protectiveness of this cap is necessary.*

Chemours Response 31a: See Chemours response to NJDEP Comment 9.

SWMU 3: Located within the SWMU 8 boundary, no exceedances were noted at this SWMU. Removal from the list of SWMUs is acceptable.

Chemours Response 31b: Chemours acknowledges that no further investigation is required at SWMU 3.

SWMU 4: Lead is found to 1730 ppm in soil at this former incinerator. As such, it should remain a SWMU, unless documentation is submitted which demonstrates the contamination is unrelated to SWMU 4 activities, or until a determination of no additional action necessary is made.

Chemours Response 31c: SWMU 4 has a gravel cover and is located within the SWMU 8 boundary. The SWMU will be retained and a CMS evaluation will be performed as part of the CMS for SWMU 8.

SWMUs 6 & 57: Located within AOC 2, the June' 15 draft table for SWMU 6 indicates no metals exceedances were found, while Table 7-1 of the RFI indicates lead above NRDCSRS is present. Neither Appendix C3 of the RFI nor the Fact Sheet provided in Appendix A entirely distinguish the SWMU 6 data from the SWMU 57 data, rendering it difficult to determine where the exceedances of lead are located, however, Soil Post Map MA-SW-10 indicates INT-VZH-014 was located within SWMU 6, where lead was noted to 967 ppm (0-1'). The map did not include the 6-6.5' interval which exhibited lead at 811 ppm. Fact Sheets indicate SWMU 6 is being investigated under SWMU 57, which exhibits lead in soil to 32,700 ppm, although MA-SW-I0 appears to indicate lead at 42,400 ppm from 1.2-2' in INT-VZM-047. It is not clear delineation is complete. Additional information is needed prior to determining no additional investigation is necessary.

Chemours Response 31d: Chemours will update data tables and posting maps for SWMU 6 and SWMU 57.

SWMU7: The Fact Sheet indicates at least three samples were collected, and lead (among other COCS) is present to 7470 ppm. The RFI and Soil Data Post Maps do not reflect this, displaying only one sample location, the findings of which largely do not correlate to those reported in the Fact Sheet. The Fact Sheet also does not include the PCB IGWSRS exceedance noted on Map A-1. Additional information regarding this SWMU is needed prior to rendering a decision.

Chemours Response 31e: SWMU 7 has an asphalt cover and is located within the SWMU 8 boundary and will be evaluated as part of the SWMU 8 CMS. Chemours will update data tables, Fact Sheets, and Posting maps for SWMU 7.

SWMUs 18A, 34: It is agreed no further investigation of the soils is necessary; ground water in the area is to be addressed via the GW CMS. Removal of the SWMU from the active SWMU list is acceptable.

Chemours Response 31f: Chemours acknowledges that no further investigation is required at SWMUs 18A and 34.

SWMU 30: SWMU 30 consists of Sanitary Landfills A and B, which received elastomeric waste, oils, tars, silt, iron hydroxide, aluminum hydroxide, iron oxide, rubble, asbestos, plastic, bottom ash and fly ash.

Additionally, based upon a recent email dated January 3, 2017, from Chemours' Ed Lutz, disposal activities in Sanitary Landfill B are to resume. Given the wastes received, the size of the SWMU, and the ongoing nature of the disposal activities, the SWMU should be retained and evaluated; evaluation may be performed under the CMS for SWMU 8.

Chemours Response 31g: Chemours agrees that SWMU 30 will be retained on the active SWMU list and its evaluation can be performed under the corrective measures study for SWMU 8.

SWMU 41-1: Previously identified as a drum storage area used to store raw materials, finished products and waste material, the southern half of the area remains active. A single sample was reported collected; although the Fact Sheet indicates no exceedances were found, benzo(a)anthracene was above the IGWSSL and benzo(a)pyrene above the NRDCSRS. Although it is agreed no additional soils investigation is necessary at this time, as the southern half of the area remains active, the SWMU should remain on the active SWMU list.

Chemours Response 31h: Chemours agrees that SWMU 41-1 will be retained on the active SWMU list.

SWMU 41-2: Although the Fact Sheet and June '15 SWMU Table reference only sample location P3-41-2-1, which exhibited no exceedances, Soil Post Map MA-EAST-2 indicates sample location INT-VZH-090 is also at this SWMU. INT-VZH-090 exhibited levels of PAHs above NRDCSRS. It is unclear where delineation to the south is deemed completed.

Chemours Response 31i: Refer to Chemours response 10a.

SWMUs 55-1, 55-2 & 55-6: Fill Deposition Areas 1, 2 & 6 were found to have no levels of contamination above NRDCSRS; it is agreed no further investigation is necessary. Removal of the SWMUs from the list of active SWMUs is acceptable.

Chemours Response 31j: Chemours acknowledges the acceptance of the removal of SWMUs 55-1, 55-2, and 55-6 from the active SWMU list.

SWMU 55-3: Among the elevated levels of constituents noted are 1,4-Dichlorobenzene, benzene and naphthalene. Although ground water in the area was not sampled, the Fact Sheet indicates the area may be a continuing source. Additionally, the area is noted as having a surface cover "barrier" of crushed stone. Given that the referenced contaminants are inhalation exposure pathway driven, a crushed stone cap may not be adequate. Further evaluation/justification of protectiveness is necessary.

Chemours Response 31k: See Chemours response to NJDEP Comment 9.

SWMU 55-4: Elevated levels of metals, VOCs and semi-volatiles have been noted within the 17-acre fill deposition area, with the highest concentrations found, as noted in the Fact Sheet, at location P2-554-6. As some of the constituents found are inhalation exposure pathway driven, evaluation as to adequacy of any existing cover/"cap" should be performed.

Chemours Response 31l: See Chemours response to NJDEP Comment 9.

SWMU 55-5: Levels of lead and PAHs are found above the NRDCSRS; as such, engineering controls acceptable to regulators must be in place and incorporated into a Deed Notice.

Chemours Response 31m: See Chemours response to NJDEP Comment 9.

SWMU 59: It is agreed no additional investigation is necessary; removal of the SWMU from the list of active SWMUs is acceptable.

SWMU 60: Although elevated levels of several COCs were noted, it is agreed they are not related to SWMU 60, but rather, to the historic basin drainage ditch. No further investigation is necessary; removal of the SWMU from the active SWMU list is acceptable.

SWMU 62: It is agreed no further investigation for soil is necessary.

Chemours Response 31n: Chemours acknowledges that no further investigation is required at SWMUs 59, 60, and 62.

SWMU 63: Analytical results indicate levels of N-Nitrosodiphenylamine and Naphthalene in soil significantly exceed the IGWSSL. As per previous comments (see DEP comment letter of December 31, 2015, attached), these exceedances should be addressed.

Chemours Response 31o: SWMU 63 is entirely covered with hard surface (asphalt or concrete), which limits the amount of rainwater that can contact the soil and this area will be included in the site wide CMS for groundwater.

NJDEP Comment 32: *No Further Action for Soil Proposed: SWMU 31: The Fact Sheet indicates the soil analytical results were below concern; it is agreed no additional action for soils is necessary and the SWMU may be removed from the active SWMU list.*

Chemours Response 32a: Chemours acknowledges that no further investigation is required at SWMU 31.

SWMU 41-3: The Soil Post Maps (e.g. MA-SW-5) appear to indicate the sampling point referenced in the Fact Sheet (P3-41-3-1) was not collected within that area designated as SWMU 41-3. Clarification is required.

Chemours Response 32b: As noted on the Fact Sheets, SWMU 41-3 was identified by EPA during the 1987 site analysis as a drum storage area. The SWMU 41-3 boundary covers the entire building; however the SWMU is located outside of the physical building. The sample was collected in the drum storage area associated with the building.

SWMU 41-8: Benzo(a)pyrene was found above NRDCSRS; although it is agreed no further active remedial efforts are necessary at this SWMU, until such time as the engineering controls are formally established in a Deed Notice, a designation of no further action is not appropriate.

SWMUs 45-1, 45-5 & 48-1: Levels of soil contamination above NRDCSRS are noted. As above, until such time as an agreed upon engineering control is in place and formally established in a Deed Notice; a designation of no further action is not appropriate.

Chemours Response 32c: No further investigation will be added to the table until such time that engineering controls and deed notices are put in place.

SWMU 45-3: Although no exceedances are reported in the June 2015 SWMU Summary Table or Soil Data Post Maps CP-1 through CP-4, the Fact Sheet indicates a slight exceedance of the RDCSRS for benzo(b)fluoranthene. As such, an entire site Deed Notice as referenced in the Fact Sheet is appropriate; no additional action for soils is necessary and removal from the list of active SWMUs is acceptable.

SWMU 45-4, 45-6, 45-7, 48-3, 48-5, 48-6, 48-7: Levels of contaminants in soil are reported below concern. It is agreed no additional action for soils is necessary and removal from the list of active SWMUs is acceptable.

Chemours Response 32d: Chemours acknowledges that no further investigation is required at SWMUs 45-3, 45-4, 45-6, 45-7, 48-3, 48-5, 48-6, and 48-7.

SWMU45-8: The June 2015 SWMU Summary Table and Soil Post Map CP-2 display no soil exceedances noted, however, the Fact Sheet indicates several PAHs are found above NRDCSRS. As such, engineering controls (included in a Deed Notice) would be required. Clarification is necessary.

Chemours Response 32e: Soil summary tables and posting maps were generated using data stored in the site's computer database, This database contains data from as far back as 1995 (approx.). The SWMU table reflects data for soil collected in 1990 and 1992, which is only available in hardcopy documentation (Phase I RFI). Chemours agrees that engineering controls and a Deed Notice will be required.

SWMU 55-7: Based upon soils analytical results, it is agreed no additional action for soils is necessary. The request to remove the SWMU from the list of active SWMUs is acceptable.

SWMU 58: It is agreed no additional action regarding soils is necessary; removal of the SWMU from the list of active SWMUs is acceptable.

Chemours Response 32f: Chemours acknowledges that no further investigation is required at SWMUs 55-7 and 58.

NJDEP Comment 33: *Remediation Area (IRM/ISM/excavation completed): SWMU 5A: The letter included as Attachment 12 indicating approval of the RAR is marked "Draft"; please provide a final copy. Among those contaminants found beneath the vegetative cover in the former disposal area are 1,4-dichlorobenzene (44 ppm) and naphthalene (4000 ppm). Also, given that these contaminants are inhalation exposure pathway driven, concern arises regarding the adequacy of a vegetative cap. Several constituents at this area were previously noted (December 31, 2015 correspondence) as significantly exceeding the IGWSSL. As such, comments as to how the significant exceedance of the IGWSSL was/is to be adequately addressed was requested. Based upon review of the Soil Data Post Maps, these sample locations include P2-5-3 (naphthalene to 4000 ppm, mercury 69 ppm and lead 1320 ppm). Information should be provided to address each concern.*

Chemours Response 33a: Chemours will attempt to locate the final approval letter from 2002.

SWMU 5B: As above, the October 2002 RAR approval letter provided as Attachment 12, is marked "Draft"; please provide a final version. Sediment removal was performed, however, elevated levels remain, which, although apparently not included in the more recent submittals, were found in Figure 12-7 of the Preliminary Assessment (PA), and the 2011 Delaware River RIR. As indicated in the referenced draft 2002 approval letter, and the more recent September 27, 2012 (attached) comments to the Delaware River RIR, delineation of the sediments was incomplete, and is to be accomplished during further ecological evaluation of the River, which the Department agreed could be deferred until hydraulic control was attained (which should be upon completion of the SPB wall along AOC 1).

Chemours Response 33b: See Chemours response to EPA Comment 6. Chemours will attempt to locate the final approval letter from 2002.

SWMU 12: Located on top of SWMU 55-1, SWMU 12 impacted soils were excavated and the area backfilled, as reported in 1990. Although analytical data was not submitted, based upon information in the Fact Sheet, it is agreed removal of the SWMU from the list of active SWMUs is acceptable.

Chemours Response 33c: Chemours acknowledges that no further investigation is required at SWMU 12.

SWMU17/17A: As has been discussed, the Department does not agree that no additional investigation along the ditches is necessary. The soil removal action previously taken did not necessarily remove all source material. Although it is agreed the NJDEP issued an approval of the "Response To Comments Report - Process Water Ditch System" on December 2, 1997, the letter specifically states, "because there were no post excavation samples, this area will have to be included for further investigation as part of RCRA Facility Investigation."

Chemours Response 33d: Chemours will provide a summary report to document an inventory of ditches at Chambers Works, the current status of ditches that did not previously undergo remediation, and the rationale for previous remedial measures associated with the ditches.

SWMU 43: The Fact Sheet indicates site related compounds were found in basin sediments, however, neither the June 2015 SWMU Summary Table, RI Data Tables, Fact Sheet, nor Soil Post Maps appear to provide the data. As with SWMU 5, although the Fact Sheet and Attachment 12 indicate the RAR for SWMU 43 was approved in October of 2002, the RAR approval letter submitted is a letter marked "Draft", Please submit the final version of the approval letter, A figure was found in the PA (Figure 12-7), which indicated levels of aniline and 4-chloroaniline remain; it is unclear what - if any - other constituents may be present above residential.

Chemours Response 33e: See Chemours response to NJDEP 33b.

SWMU 45-9: Although remedial efforts were undertaken, only a single foot of soil was removed; the remainder of the SWMU appears to remain uncharacterized. Additional information is necessary.

Chemours Response 33f: Chemours will provide additional information as requested.

SWMU 52: Remedial activities included stabilization, excavation, and capping. Lead is found above RDCSRS, but below NRDCSRS outside of the remediated area. It appears the final issue remaining is inclusion of any remaining exceedances in a Deed Notice, with engineering controls as appropriate.

Chemours Response 33g: Refer to Chemours response to NJDEP 23.

SWMU56/56A: A designation of NFI (no further investigation) is proposed in the submittal table, with Attachment 15 referenced as providing documentation for same. Attachment 15, however, specifically references the "extremely high" levels of ODCB found in the post excavation (following the interim remedial measure) soil sampling results, stating it appears a significant source was yet to be investigated, and referencing the requirement for "additional investigation or work".

Chemours Response 33h: See Chemours response to EPA Comment 8.

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NJDEP Comment 34: *The CRFISI is acceptable as presented. The figures, however, indicate significant exceedances of both the non-residential direct contact soil remediation standards (NRDCSRS) and the impact to groundwater soil screening levels (IGWSSL). The following table lists contaminants which significantly exceed the IGWSSL. This table is not an all-inclusive list and does not consider the NRDCSRS. Differing colors within the table are significant only of input by different case team members. Chemours should address the many significant exceedances of the IGWSSL, and indicate, with appropriate technical justification, how each exceedance is to be managed. Chemours should also indicate how the exceedances of the NRDCSRS will be addressed.*

Chemours Response 34: See Chemours response to EPA Comment 1.

September 27, 2012 letter from Linda Range (DEP) to Sin-Kie Tjho (EPA) on the June 2011 Delaware River Remedial Investigation Report

NJDEP Comment 35: *Deeper sediments (below 0-6") adjacent to the site "(especially the NAPL area) may be impacted more than the surface layers due to subsurface discharge of dissolved contamination in ground water." These deeper sediments will need to be sampled at some point in the future following attainment of on-site hydraulic control of ground water. Pore water sampling will also likely be requested at that time. As mentioned in comments on the 2009 River Workplan, and as strongly suggested by data in this RIR, the B-aquifer subcrop "zone beneath the river appears to be a significant discharge zone of contaminants from beneath the Chambers Works Facility (e.g.,NAPL and/or dissolved contamination).*

DEP also previously commented that since operations ceased in the Carney's Point area for the most part in 1978, deeper interval river sediment samples collected along the shoreline in this area would be desirable in that they might reveal or dispel the existence of historic contamination. This issue has not been addressed by DuPont to date. This request was also communicated to DuPont in the Phase II status meeting.

In general, once on-site hydraulic control is attained, the re-opened river investigation will need to fully delineate sediment contamination for all contaminants not fully investigated. Be advised, hydrodynamics in the river may have painted a completely different picture of sediment contaminant distribution by the time hydraulic control, (which will likely take years), is achieved. The list of analytical parameters should include, but not be limited to, PCBs and compounds analyzed for under current NJPDES discharge permit(s) (e.g., PFOA, daughter products, hi-products, breakdown products, etc).

Chemours Response 35: Chemours acknowledges the NJDEP's comment that additional investigation in the Delaware River may be required. As indicated in the response to EPA Comment 6 and NJDEP Comment 7, a SLERA will be completed for the Delaware River based on current sample results and submitted to the Agencies by September 2018. Further investigation in the Delaware River, including additional characterization and delineation, will be evaluated based on the findings of the SLERA.

NJDEP Comment 36: *Page 34 Background Concentrations: "Background sediment concentrations for metals" reported by the USACOE as part of the Delaware River Main Channel Deepening Project were used to help establish site-specific background for sediment locations adjacent to the site. These data, collected from the main channel and not the river bank shallow areas, may not be appropriate for site-specific use. The RIR did not indicate whether these sediments were collected from shallow intervals or at depth, or if they were discrete or composites. Composites are commonly collected during dredging projects, but they are not used in ecological evaluations.*

Additionally, in Section 6.2.1 Study Design, Section 6.3.1 Sediment. and Section 6.6.1. DuPont refers to the Guidance for Sediment Quality Evaluation (NJDEP 1998). This document was replaced by the Ecological Evaluation Guidance (NJDEP 2012) in August 2011. All future documents should reference NJDEP 2012 (or most current version).

In Section 6.6.1 Sediment, DuPont refers to the ecological screening criteria (ESC) in NJDEP 1998. These ESC were supplemented and updated in a table posted on NJDEP's Website in July 2008 and updated again in March 2009 located at http://www.state.nj.us/dep/srp!guidance/ecoscreening/. DuPont should use the ESC listed on NJDEP's ESC table, rather than the outdated 1998 document.

Chemours Response 36: The USACOE sediment dataset used to estimate representative background concentrations for metals will be re-evaluated in any future assessment in the Delaware River. A review of regional databases for the Delaware River will be conducted to evaluate potential datasets that have become available since the 2011 Delaware River RIR to characterize regional sediment and surface-water quality outside of the influence of Chambers Works (i.e., diffuse anthropogenic pollution). Chemours will utilize the most current NJDEP Ecological Evaluation guidance and ecological screening criteria for future investigations.

If you have any further questions or concerns, please feel free to contact me at 302-773-1289 or Andrew.S.Hartten@chemours.com.

Respectfully,

Andrew H. Hartten
Chemours Project Director
Chambers Works, NJ

cc: James Haklar, U.S. EPA
Helen Dudar, NJDEP